

Biodiversity of Desert National Park Sanctuary in Rajasthan

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ABSTRACT: Desert National Park is a national park situated in the Indian state of Rajasthan, near the towns of Jaisalmer and Barmer. This is one of the largest national parks, covering an area of 3162 km². The Desert National Park is an excellent example of the ecosystem of the Thar Desert. Sand dunes form around 44% of the Park. The major landform consists of craggy rocks and compact salt lake bottoms, intermedial areas and fixed dunes. The park was gazetted in 1980.

Despite a fragile ecosystem, there is an abundance of birdlife. The region is a haven for migratory and resident birds of the desert. Many eagles, harriers, falcons, buzzards, kestrel and vultures are spotted here. Short-toed eagles, tawny eagles, spotted eagles, laggar falcons and kestrels are the most common among these. Sand grouse are spotted near small ponds or lakes. The endangered great Indian bustard is a magnificent bird found in relatively fair numbers. It migrates locally in different seasons. The most suitable time to visit the area is between November and January. The Desert National Park has a collection of fossils of animals and plants which are 180 million years old. Some fossils of dinosaurs which are 60 million years old have been found in the area.

KEYWORDS: biodiversity, fauna, flora, Rajasthan, desert, national park, birds, seasons

I. INTRODUCTION

Desert National Park covers an area of 3162 km² of which 1900 km² is in Jaisalmer district and remaining 1262 km² is in Barmer district of Rajasthan State.



The park was gazetted in 1980.[2] The park mostly consists of sand dunes (44%) but also has pediments, pavements, and structural plains.[2] Desert National Park also has fossils from the Jurassic Period.[2] The Chinkara or Indian Gazelle (*Gazella bennettii*) is a common antelope of this region. The national park's other notable inhabitants are the desert fox, wolf and desert cat. Birdlife in this sandy habitat is vivid and spectacular. Birds such as sandgrouse, partridges, bee-eaters, larks, and shrikes are commonly seen. In the winter, the birdlife is augmented by species such as the demoiselle crane and MacQueen's bustard. Perhaps the greatest attraction of the park is a bird called the great Indian bustard, a critically endangered species found only in India. Desert National Park is one of the last sites in which this species can be found in good numbers. As such, the species draws in thousands of birdwatchers from all over the world. In addition to the great Indian bustard, the park supports a variety of other birds of interest to birdwatchers and conservationists alike. The Thar Desert, often called an 'ocean of sand', covers a large area of western Rajasthan. The fragile ecosystem of the Thar supports unique and varied wildlife. In this vast ocean of sands lies the famous Desert National Park, which provides an excellent example of the ecosystem of the Thar Desert and its diverse wildlife adventure. The vegetation is sparse, and patches of sewan grass and aak shrub (*Calotropis*) can be seen. The landscape

includes craggy rocks and compact salt lake bottoms, as well as intermediate areas and both fixed and shifting dunes. Around 20 percent of the vast expanse is covered with sand dunes.



Desert cat

Mammals: desert fox, Bengal fox, desert cat, wolf, hedgehog, chinkara.

Reptiles: spiny-tailed lizard, monitor lizard, saw-scaled viper, Russell's viper, common krait.

Avifauna: sandgrouse, Indian bustard, partridges, bee-eaters, larks and shrikes are year-round residents, while demoiselle crane and houbara bustard arrive in winter. Raptors include tawny and steppe eagles, long-legged and honey buzzards, and falcons.[3]



Great Indian Bustard

Habitats that are found in the park include open grassland, thorny bushes, and dunes. 168 plant species have been recorded in the park. Some species of trees[2] that inhabit the park include *Tecomella undulata*, *Moringa concanensis*, *Helitropium rariflorum*, and *Ammannie desertorum*.

Indian bustard: The endangered Indian bustard is the major attraction of Desert National Park. Brown and white in colour, the bustard is a metre tall and has long bare legs and a long neck. One can spot this tall and graceful ground-dwelling bird near the Sudashri waterhole.

Sam Sand Dunes: These dunes are located near the Thar Desert.

Gadsisar Lake: This lake is among the tourist places in Jaisalmer, Rajasthan. Thousands of migratory birds come to this place every year.



Chinkara

Jeep Safari enables tourists to explore a wider area of the park in relatively short span of time. Do the words “wildlife sanctuary” conjure a picture of dense forests, of tall thickets of grass, of lush greenery. You’re in for a surprise then. Desert National Park is nothing like that. As its name suggests, one-fifth of the park is composed of sand dunes – yellow and shimmery – demonstrative of the fragile ecosystem of the Thar Desert in western Rajasthan. The rest of the landscape consists of scrubby thorns and extinct salt lakes. Surprisingly, despite such harsh conditions, flora and fauna continue to thrive in the park. Desert National Park is the only place in Rajasthan where the state bird, animal, plant and flower of Rajasthan – the Great Indian Bustard, chinkara, khejra and rohiya respectively – naturally exist. Due to the park’s proximity to Bharatpur Bird Sanctuary, it also plays host to flocks of demoiselle cranes and the houbara bustard in winters



Aak shrub

However, the Great Indian Bustard steals the show due to its endangered status. The tall, graceful bird is found aplenty in this park; it is one of the last spots to have a considerable number of the bustards. Due to the bird's seasonal migration to local areas, sometimes it can be taxing to spot it. One of the best kept secrets of the park is its rich herpetofauna. Over 11% of the 456 reptile species found in India, inhabit the national park. Persian gecko, dwarf gecko, Indian spiny-tailed lizard, desert monitor, Sindh awl-headed snake, toad-headed agama and saw-scaled viper. Desert National park is one of the rare parks that also attract palaeontologists (people who study prehistoric life). Fossils of 6 million year old dinosaurs have been found here. 180 million years old fossils of animals and plants are preserved at Wood Fossil Park at Akal, situated 17 km away from Jaisalmer. All in all, the Desert National park should be on the must-visit list of every traveller seeking a new and thrilling adventure. Safaris on bullock cart to explore the place is a rare experience to cherish in this park.

Ronj, khair, rohira, dhok, khejra, palm trees, ber, aak shrub and sewan grass, Animals include blackbuck, wolf, chinkara, Indian fox, desert fox, desert hare, desert cat and the long-eared hedgehog.



The birds that can be spotted include the Great Indian Bustard, oriental white-backed vulture, partridges, larks, the sandgrouse, doves, shrikes, bee-eaters, chats, babblers, buzzards, falcons, kites and different species of eagles. These birds are residents of the park. Migratory visitors include demoiselle cranes, the houbara bustard and waterfowls.

II. DISCUSSION

As Rajasthan shares the international border with Pakistan's Sindh and Punjab provinces, it is suspected that the GIBs might have flown across to the neighboring country's desert amid fears that they could become easy prey for the poachers there. The Thar Desert in north-western India is a unique and the only habitat of its type in the Indian subcontinent.



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Khejra tree

The Aravalli hills mark the eastern-most boundary limit of the Thar desert while the western limit is defined by the fertile plains of the Indus.

The Great Rann of Kutch forms a sharp boundary in the south while its northern limits are formed by the riparian sub-Himalayan plains. DNP is spectacular representative of the desert ecosystem with exceptional beauty with endless expanse of sand, sand dunes, broken rock formations and an interesting array of unique flora and fauna.

The DNP is the most important site for the long-term survival of the Globally Threatened Great Indian Bustard and other endemic fauna and flora.

Other birds of significance include the endangered Oriental White-backed vulture *Gyps bengalensis* and Long-billed *Gyps indicus*, *Stoliczka's Bushchat Saxicola macrorhyncha*, *Green Munia Amandava formosa MacQueen's* or *Houbara Bustard Chlamydotis maqueeni*.

Eleven bird species representative of Biome-13 have been identified by BirdLife International. The Thar desert is rich in herpetofauna, being the home of 11% of the 456 reptile species found in India.

The prominent among them are Toad-headed Agama, Sindh Awl-headed Snake, Indian Spiny-tailed Lizard, Dwarf Gecko, Persian Gecko, Desert Monitor and Saw-scaled Viper. One of the most interesting features of the Desert National Park is the presence of fossils from the Jurassic Period. The desert is several thousand years old.



Saw scaled viper

The Wood Fossil Park at Akal has significant fossil evidences dating back to the Jurassic period. The park is a haven for migratory and desert's resident birds. Mostly they are raptors. Avid birders come here to get a good look of the Short-toed eagle, tawny eagle, spotted eagle, laggar falcon and kestrel.

These are the top birds of prey found in this region.

It's a great place to see demoiselle cranes and MacQueen's bustard. But none of them are as famous and as important as the Critically endangered great Indian bustard. The GIB, which is the State bird of Rajasthan, is also considered India's most critically endangered bird and is protected under the Wildlife Protection Act.

Its population of about 150 in Rajasthan accounts for 95% of its total world population.

The captive breeding of GIBs was taken up in the DNP through a project executed by the Dehradun-based Wildlife Institute of India.

III. Results and Conclusions

Apart from being rich in culture, Rajasthan's biodiversity is hugely diverse. Though most of the state is covered with desert, it has a large flora and fauna that is scattered all over the region. Each and every species present in the state has an interesting and important role to play. They all contribute to running the ecosystem as all of them directly or indirectly depend on each other. The vegetation, which is chiefly xerophytic and quite scarce, occurs in great variety.



Sewan grass

There are 682 plant and 390 animal species present in the Thar Desert. The rich floral and faunal composition of the state provides useful material for human consumption and contributes in forming a unique ecosystem. It is the oldest fold mountain range in India. It joins two ancient crust segments of the earth to form the Aravalli Craton. The north-eastern part of the range is called Alwar Hills. Numerous hills are situated here. Major lakes in this region are Sambhar, Ramgarh and Pandupole. The central part of the range has the Sambhar Basin and the Merwara hills. This region is full of sand hills. The southeast of the range has Bhorat plateau and hills like Mewar Hills. It is the highest portion of the range. The southwest range has Mount Abu, separated from the main ranges by the West Banas River. The highest peak in the mountain range, Guru Shikhar, is here. Granite is found in large amounts in this region. The wildlife of this region habitats animals including Leopard, Striped Hyena, Indian Wolf, Golden Jackal, Hanuman Langur, Four-horned Antelope, Chinkara, Indian Crested Porcupine, Sambar, Nilgai, Sloth Bear, Toddy Cat or Common Palm Civet, Jungle Cat, Bengal Fox, Crocodile and Indian Rock Python.



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Ber tree

The flora of the Aravalli region encompasses Dhau, Salai, Amaltash, Dhak, Kullu, Ronjh, Kumath, Doodhi, Barna, Sargooro, Gurjan, Roheda, Gamhar, Harsingar, Krishan Kadam, Small trees like Bistendu, Chamrod, Harsingar, Kuda, Shrub species such as Goyakhair, Gangeti, Kair, Adusa, Marodphali, Climbers such as *Vallisneria spiralis*, *Ichnocarpus* spp, *Telosma phallida*, *Watahaka volubilis* and many others.

The Aravalli Range is more fertile and is home to dry deciduous forests and tropical dry broadleaf forests that include trees like Teak and Acacia. Black soil with lava deposits can also be found in the Aravalli region. Food crops and cash crops like cotton are grown here. Bhilwara district and major parts of Udaipur district, Chittaurgarh district and Sirohi district lie in this region.

The eastern plains are fertile with alluvial soil. Availability of water from rivers allows the region to be cultivated well. Flood-prone regions in the plains have loamy and clayey soil. The easternmost regions are drained by Chambal and Banas rivers.

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